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SOLAR KIT BIPV LUMA

[www.GreenerEnergy.ca](http://www.GreenerEnergy.ca)

[sales@LivEnergySolutions.com](mailto:sales@LivEnergySolutions.com)



LIV -GREENERENERGY's solar kit provides contractors with several important competitive advantages over current products on the market:

**Greater Builder Control.** The LIV -GREENERENERGY solar roof kit keeps builders in control of their projects. The kits solve the challenge of hiring and working with independent solar integrators for installation, which is a big headache for builders and roofers. The residential solar market has evolved as an add-on to the roof. Once a roof is complete, a separate contractor will typically install a solar system. This results in a delay in the project schedule. This also requires new holes drilled in the roof, and other skilled trades, such as an integrator, roofer, and electrician.

LIV -GREENERENERGY's system was developed for roofers and builders to use their own labor, install the systems on their schedule and thus allow them to stay in control of their projects' timing and costs. Because the contractor will be able to install the LIV -GREENERENERGY Solar Roof himself, the contractor not only has more control, but he will also make more money from these installations.

**Reasonable Installation Cost.** LIV -GREENERENERGY solar roof kits cost less because they reduce redundancy in materials and labor costs; therefore, the payback period is shorter compared to adding solar systems on top of existing roofs. Indeed, in ideal situations, the LIV -GREENERENERGY solar roof kit has an estimated payback of as little as five to seven years, depending on state and local incentives and sunlight conditions, when the LIV -GREENERENERGY solar roof is installed in place of a regular roof.

**Ease of Installation by Roofers.** Installation challenges for current solar system designs are considerable. According to the website of Akeena, one of the nation's leading solar installers,

In general, roof mounting of solar power modules is more complex than either ground mounting or pole mounting. Roof mounts are more difficult to install ... Penetrating the roof seal is inevitable and leaks may occur if the solar energy system is not installed properly... The brittle nature of tile and slate roofs makes these installations more complex ...

*LIV -GREENERENERGY's design, based on their expertise in the roofing industry, empowered the founders to solve the rooftop installers' problems by creating award winning solar roof kits that can be installed by professional roofers. LIV -GREENERENERGY's in-depth knowledge of tile and slate roofs enables LIV -GREENERENERGY to provide valuable advice on tackling the most difficult roofing projects.*

- **Pleasing Aesthetics.** Typical residential solar systems are unattractive. Gary and Robert Allen work with customers who demand great design, and the Allen brothers designed the LIV -GREENERENERGY solar roof kit specifically for residential application. Many solar applications are vertical, designed to work with standing seam roofs. Yet, this will not work aesthetically in most residential roofs, where almost all of the systems are set up with horizontal lines. The LIV -GREENERENERGY roof system is a horizontal application on metal panels with room for the wires to run underneath.

**Value-added Sales to Customers.** By selling directly to contractors, LIV -GREENERENERGY increases the options and services they can provide to their customers. The kits are a great way for roofers and builders to up sell homes and roofs, while also increasing their margins.

**SOLAR KITS**

| <u>Product Specs</u>                           | <u>Thin Film</u>   | <u>Crystalline</u> |
|--|--------------------|--------------------|
| <b>All in One Solar Roofing Kit Dimensions</b> | <b>LR-1860</b>     | <b>LR-2016</b>     |
| Rated Solar Power                              | 1860 watts         | 2016 Watts         |
| Total Solar Shingles                           | 60                 | 36                 |
| Number of Solar Shingles per Row               | 6                  | 4                  |
| Number of Rows                                 | 10                 | 9                  |
| Solar Power Strings                            | 2 groups of 5 rows | 3 groups of 3 rows |
| Physical Length Across (includes Trim)         | 27'3" (8294mm)     | 18' (6986mm)       |
| Physical Width Upward (Includes Trim)          | 13'7.75" (4158mm)  | 12' (4904mm)       |
| Total Shingle Area                             | 371.8 sq. ft.      | 216 sq. ft.        |



**Part No. Solar Shingle Length Solar Shingle Width Solar Shingle Thickness Weight** LR-1860 51 1/8" (1300mm) 15 5/8" (400mm) 1 1/4" (32mm) 10.5 lb (4.8Kg)

| <b>Electrical Spec</b>      | <b>LR-1860 Shingle</b> | <b>LR-2016 Shingle</b> |
|-----------------------------|------------------------|------------------------|
| Rated Power (Pmax)          | 31 Watts               | 56 Watts               |
| Operating Voltage (Vmp)     | 7.5 Volts              | 8.2 Volts              |
| Operating Current (Imp)     | 4.13 Amps              | 7.45 Amps              |
| Open Circuit Voltage (Voc)  | 10.5 Volts             | 11.5 Volts             |
| Short Circuit Current (Isc) | 5.1 Amps               | 8.8 Amps               |
| Series Fuse Rating          | 8 Amps                 | 15 Amps                |
| Min. Blocking Diode         | 8 Amps                 | 15 Amps                |
| Kit Voltage                 | 300 Volts dc           | 92 Volts               |